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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,522	07/31/2001	Stanley F. Wyse	L-390	3654

7590 11/21/2003

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EXAMINER	
LE, DAVID D	

ART UNIT	PAPER NUMBER
3681	

DATE MAILED: 11/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/919,522	WYSE, STANLEY F.	
	Examiner	Art Unit	
	David D. Le	3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-12 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-12 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

This is the fourth Office action on the merits of Application No. 09/919,522, filed 31 July 2001. Claims 1, 3-12, and 21 are pending.

Documents

1. The following documents have been received and filed as part of the patent application:

- Declaration and Power of Attorney, received on 01/14/02
- Drawings, received on 04/15/02

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 29 October 2003 has been entered.

Specification

3. It is noted that the current abstract of the disclosure has been objected to, since the last office action on the merits, dated 04 August 2003, because its length has exceed 150 words. Correction is still required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 6 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6 and 12:

- Claim 6 recites the limitation "an operational amplifier", which is previously recited in claim 5. This limitation is a double inclusions and it should be referred to as --said operational amplifier--.
- Claim 12 recites the limitation "an operational amplifier", which is previously recited in claim 11. This limitation is a double inclusions and it should be referred to as --said operational amplifier--.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 3, 5, 7-9, 11, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 6,154,317 to Segerstrom et al. in view of U. S. Patent No. 5,138,883 to Paquet et al.

Claims 1, 3, 5, 7-9, 11, and 21:

Segerstrom (i.e., Fig. 1; column 1, line 65 – column 2, line 37) discloses a device for stabilizing of a remotely controlled camera comprising:

- A video camera (1);
- A two-axes stabilizing self-acting rategyro (2);
- A first set motor (10);
- A second set motor (11);
- An electronic control unit (15);
- A first electric rategyro (13);
- A second electric rategyro (14); and
- Four gimbals (1, 4, 6, and 8).

Segerstrom lacks:

- A first forcer for applying a torque with respect to a first axis of said rotor in response to a first signal;
- A second forcer for applying a torque to said rotor with respect to a second axis, orthogonal to said first axis, in response to a second signal;
- A first pickoff for detecting deflection of said rotor about said first rotor axis and generating a first pickoff signal in response;

- A second pickoff for detecting deflection of said rotor about said second rotor axis and generating a second pickoff signal in response;
- At least one cross-axis circuit for receiving one of said first and second signals and deriving the other of said first and second signals as the derivative thereof;
- Wherein the gain of said at least one cross-axis circuit is inversely proportional to the nutation frequency of said rotor;
- Wherein said at least one cross-axis circuit comprises an operational amplifier;
- A second cross-axis circuit arranged to receive said second signal and to generate said first signal in response thereto; and
- Wherein each cross-axis circuit generates an output signal comprising a derivative of an input signal.

Paquet (i.e., Figs. 1 and 3; column 2, lines 18-68; column 3, line 33 – column 4, line 46) teaches a typical two-degree-of-freedom, dry tuned rotor gyroscope comprising:

- A first forcer for applying a torque with respect to a first axis of said rotor in response to a first signal (i.e., column 3, line 56 – column 4, line 14);
- A second forcer for applying a torque to said rotor with respect to a second axis, orthogonal to said first axis, in response to a second signal (i.e., column 3, line 56 – column 4, line 14);

- A first pickoff (36 or 38) for detecting deflection of said rotor about said first rotor axis and generating a first pickoff signal in response (i.e., Fig. 1; column 3, lines 56-68);
- A second pickoff (36 or 38) for detecting deflection of said rotor about said second rotor axis and generating a second pickoff signal in response (i.e., Fig. 1; column 3, lines 56-68);
- At least one cross-axis circuit for receiving one of said first and second signals and deriving the other of said first and second signals as the derivative thereof (i.e., Fig. 3; column 5, lines 16-37);
- Wherein the gyro is secured to the body axes of the vehicle and is required to sense and slew the full range of dynamics of the vehicle, which includes the linear path (i.e., column 4, lines 15-17);
- Wherein the gain of said at least one cross-axis circuit is inversely proportional to the nutation frequency of said rotor (column 8, lines 54-68);
- Wherein said at least one cross-axis circuit comprises an operational amplifier (column 7, line 67 - column 8, line1);
- A second cross-axis circuit arranged to receive said second signal and to generate said first signal in response thereto (i.e., Fig. 3; column 5, lines 16-37); and
- Wherein each cross-axis circuit generates an output signal comprising a derivative of an input signal (i.e., column5, lines 16-37).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Segerstrom such that the rategyros are the typical two-degree-of-freedom, dry tuned rotor gyroscope, view of Paquet, in order to provide a high resolution rebalance loop, which is capable of producing a precise output measurement of angular rate of the gyroscope rotor about each of the rotor axis.

8. Claims 4, 6, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Segerstrom et al. in view of Paquet et al. as applied to Claims 1, 3, 5, 7-9, 11, and 21 above, and further in view of U. S. Patent No. 4,189,946 to Hoffman et al.

Claims 4, 6, 10, and 12:

Segerstrom in view of Paquet discloses all elements and limitations as set forth in claims 1, 3, 5, 7-9, 11, and 21. Regarding claims 4, 6, 10, and 12, Segerstrom lacks:

- Wherein the transfer function T(s) of said at least one cross axis circuit is T (s)= Ks/ (s + 2nkfnut) where k is an integer and fnut is the nutation frequency of said rotor; and
- A feedback resistor in parallel with a feedback capacitor.

Hoffman (column 3, lines 41-57; column 7, lines 8-19) teaches a three-axis gyro comprising:

- Wherein the transfer function T(s) of said at least one cross axis circuit is T (s)= Ks/ (s + 2nkfnut) where k is an integer and fnut is the nutation frequency of said rotor (i.e., column 3, lines 41-57); and
- A feedback resistor in parallel with a feedback capacitor (i.e., column 7, lines 8-19).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Segerstrom to include the transfer function equation and a parallel type of arrangement between the feedback resistors and capacitors, in view of Hoffman, in order to provide a gyroscope with an improved angular rate sensing capability.

Response to Arguments

9. Applicant's arguments with respect to claims 1, 3-12, and 21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Le whose telephone number is 703-305-3690. The examiner can normally be reached on Mon-Fri (0700-1530).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A Marmor can be reached on 703-308-0830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9326.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

DD
ddl

RODNEY H. BONCK
PRIMARY EXAMINER
ART UNIT 3681